APPENDIX

"A"

Head-to-Head Analysis Of:

Existing Traffic Pattern VS. One-Way Couple

Prepared for:
The City of Bethlehem

Prepared by:
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In association with:
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The Concept of Level of Service (LOS):

LOS defines congestion as LOS "D" or worse. LOS is a value that reflects driver comfort. It ranges from "A" (best) to "F" (worst). Table 15 shows volume to capacity relationships and operating conditions for various Levels of Service. A volume/capacity ratio is a measure of the volume of traffic carried on a road segment divided by its capacity.

TABLE 15

The Concept of Level of Service (LOS)

Level of Service	Volume / Capacity Ratio	Operating Condition
A	0.00 - 0.50	Free Flow
B	0.51 - 0.70	Free Flow
C	0.70 - 0.80	Stable Flow, Reduced Maneuverability
D	0.81 - 0.90	Unstable Flow, Reduced Speed, Reduced Maneuverability
E	0.91 - 1.00	At Capacity, Flow Disruption, Some Queueing
F	Greater than 1.00	Fully Congested, Flow Breakdown

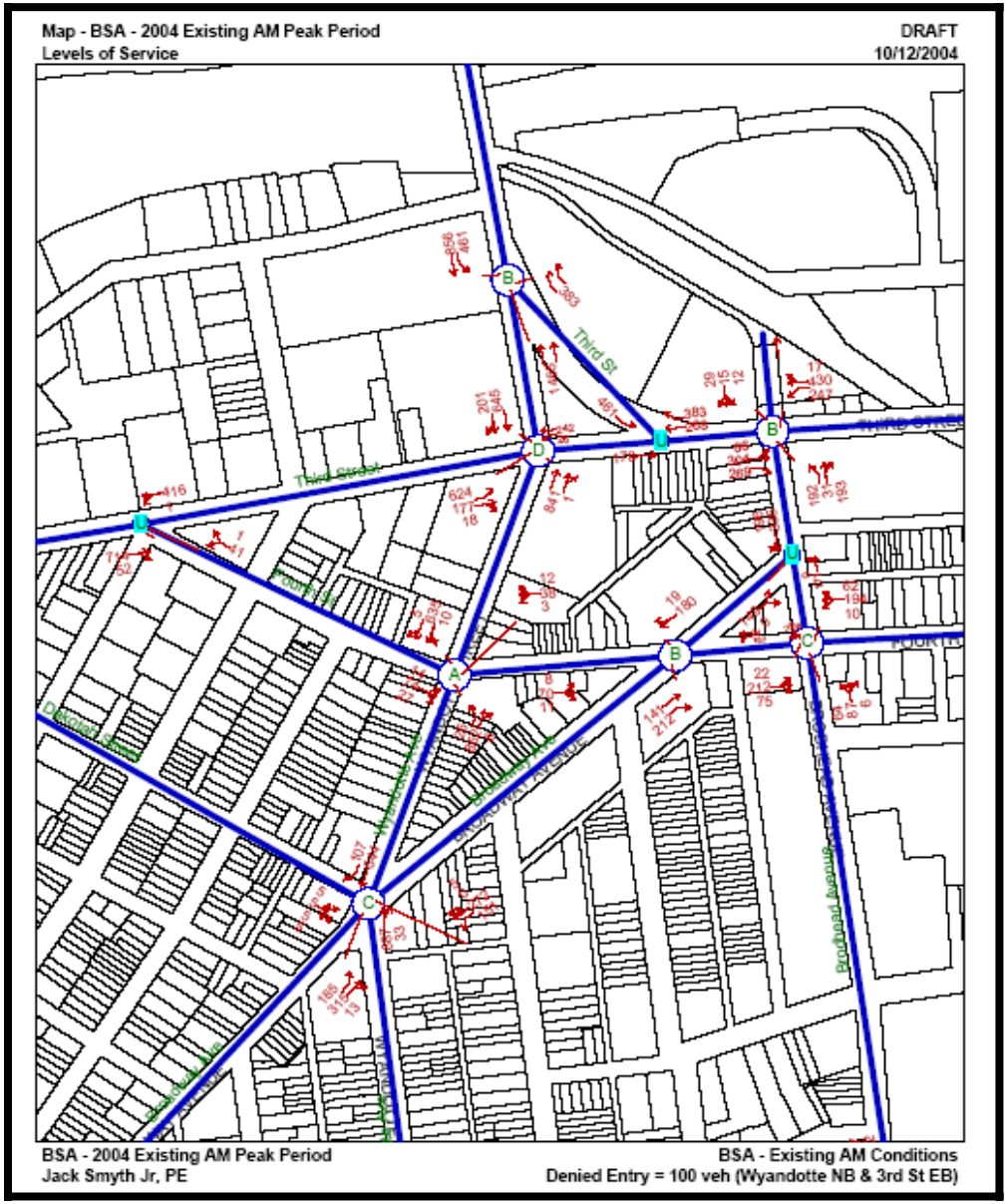
***Source**: Garmen Associates, Lehigh Valley Traffic Model*

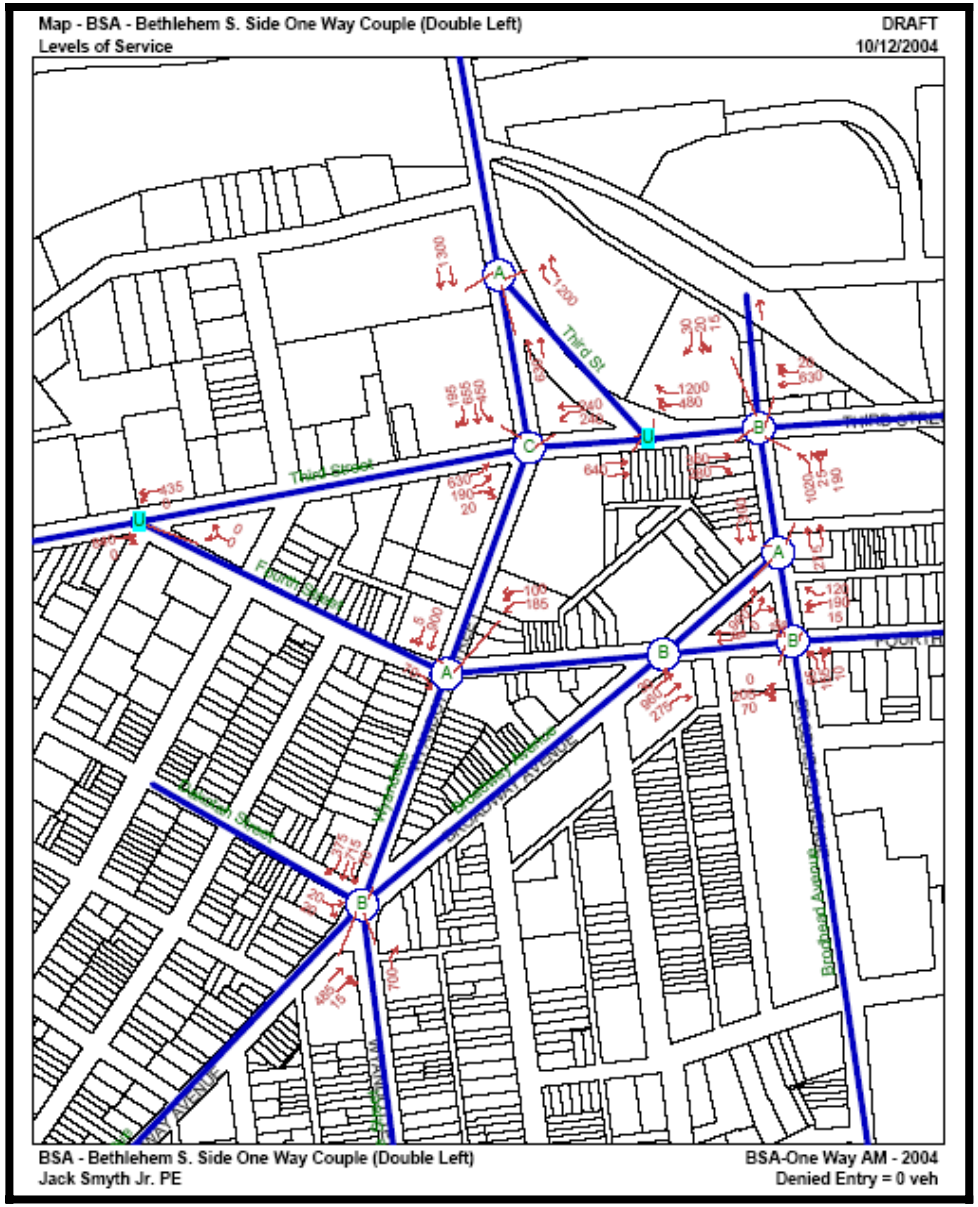
	HEAD-to-HEAD AM PEAK 2004		HEAD-to-HEAD PM PEAK 2004	
INTERSECTION	**Existing Overall LOS**	**One-way Overall LOS**	**Existing Overall LOS**	**One-way Overall LOS**
3rd St./ Rt. 378	B	A	B	A
3rd St./Wyandotte	D	C	E	C
4th St./Wyandotte	A	A	B	B
5 Points Intersection	C	B	E	C
4th St./Broadway	B	B	B	B
4th St./Brodhead	C	B	C	B
Broadway/Brodhead	N/A	A	N/A	A
3rd St./ Brodhead	B	B	B	B

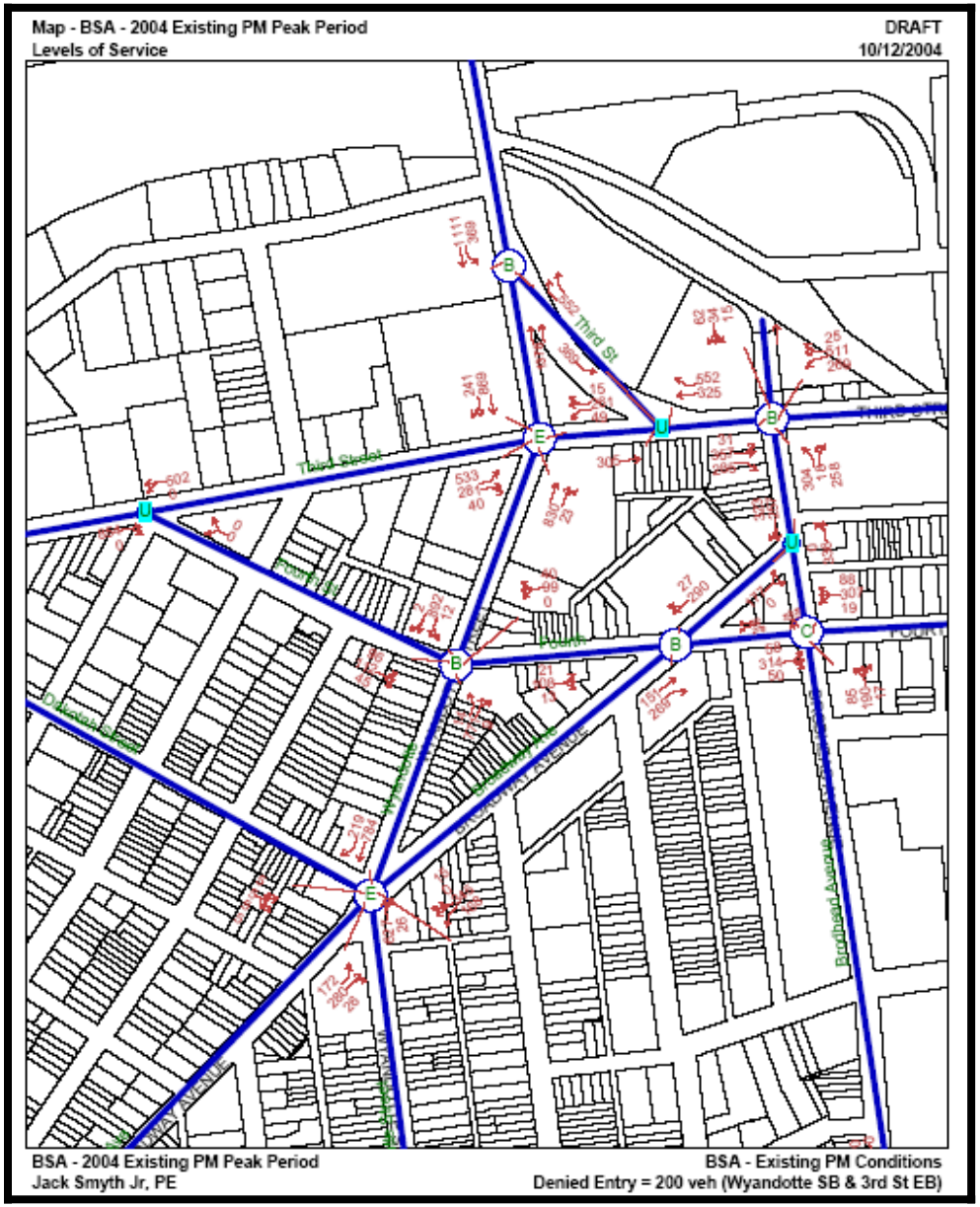
Table: Head-to-Head Analysis of AM and PM Peak Hour Level of Service for 2004 Traffic Levels

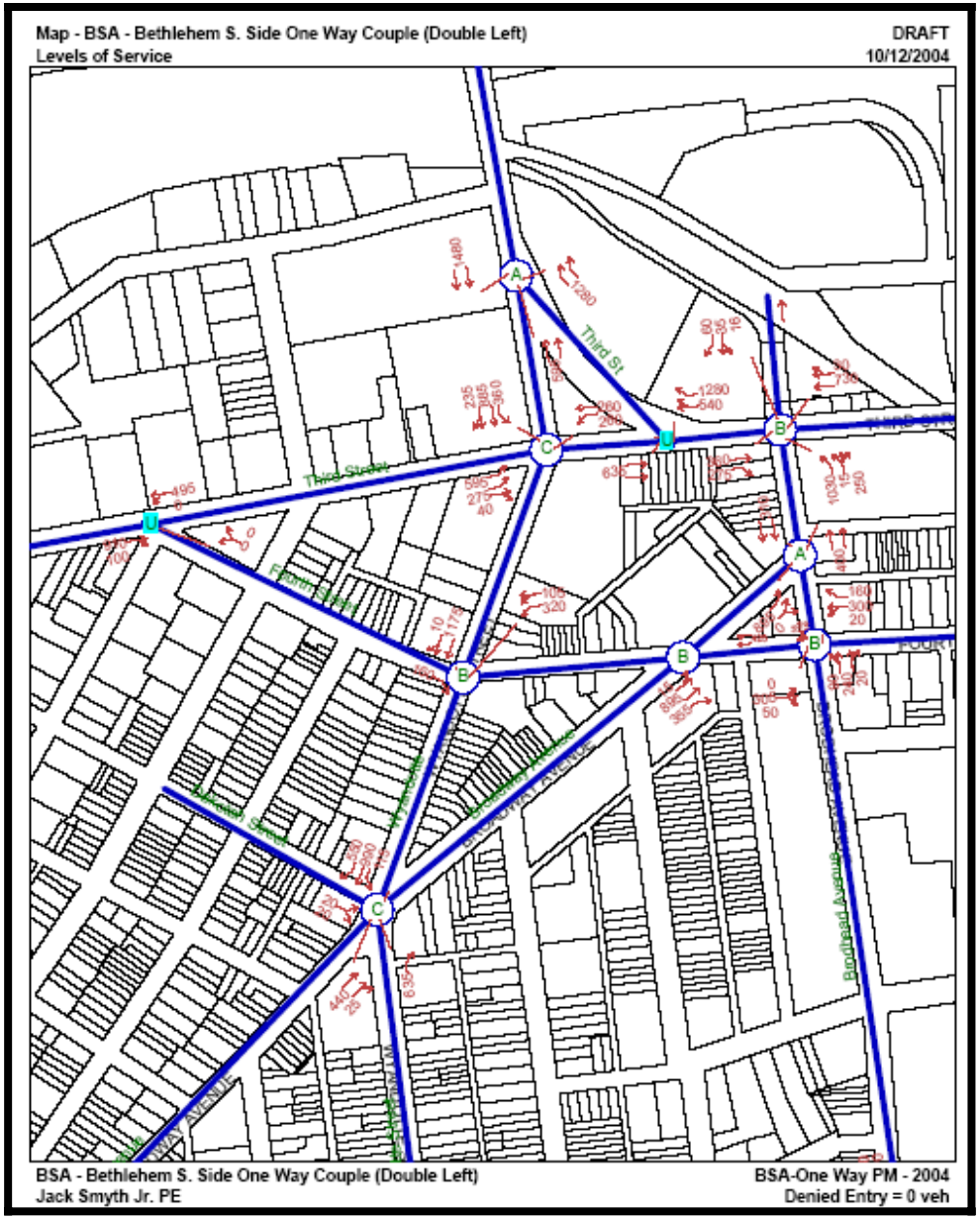
	HEAD-to-HEAD AM PEAK 2014		HEAD-to-HEAD PM PEAK 2014	
INTERSECTION	***No-build Overall LOS**	**One-way Overall LOS**	***No-build Overall LOS**	**One-way Overall LOS**
3rd St./ Rt. 378	D	A	B	A
3rd St./Wyandotte	E	D	F	D
4th St./Wyandotte	B	A	C	C
5 Points Intersection	E	B	F	D
4th St./Broadway	B	B	C	B
4th St./Brodhead	C	B	C	B
Broadway/Brodhead	N/A	B	N/A	A
3rd St./ Brodhead	B	C	C	C

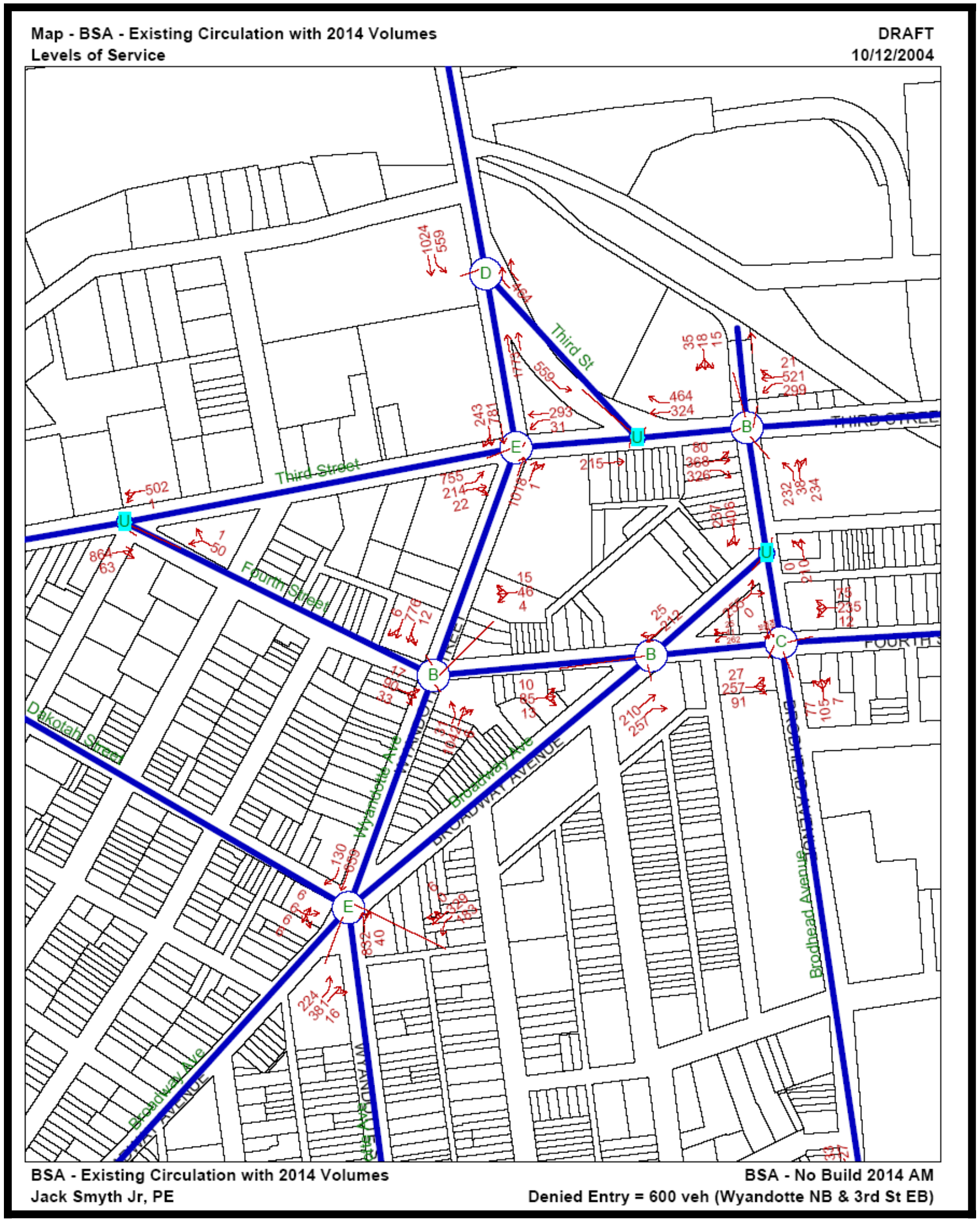
Table: Head-to-Head Analysis of Peak Hour Level of Service for Projected 2014 Traffic Levels
*No-build = Existing Traffic Pattern

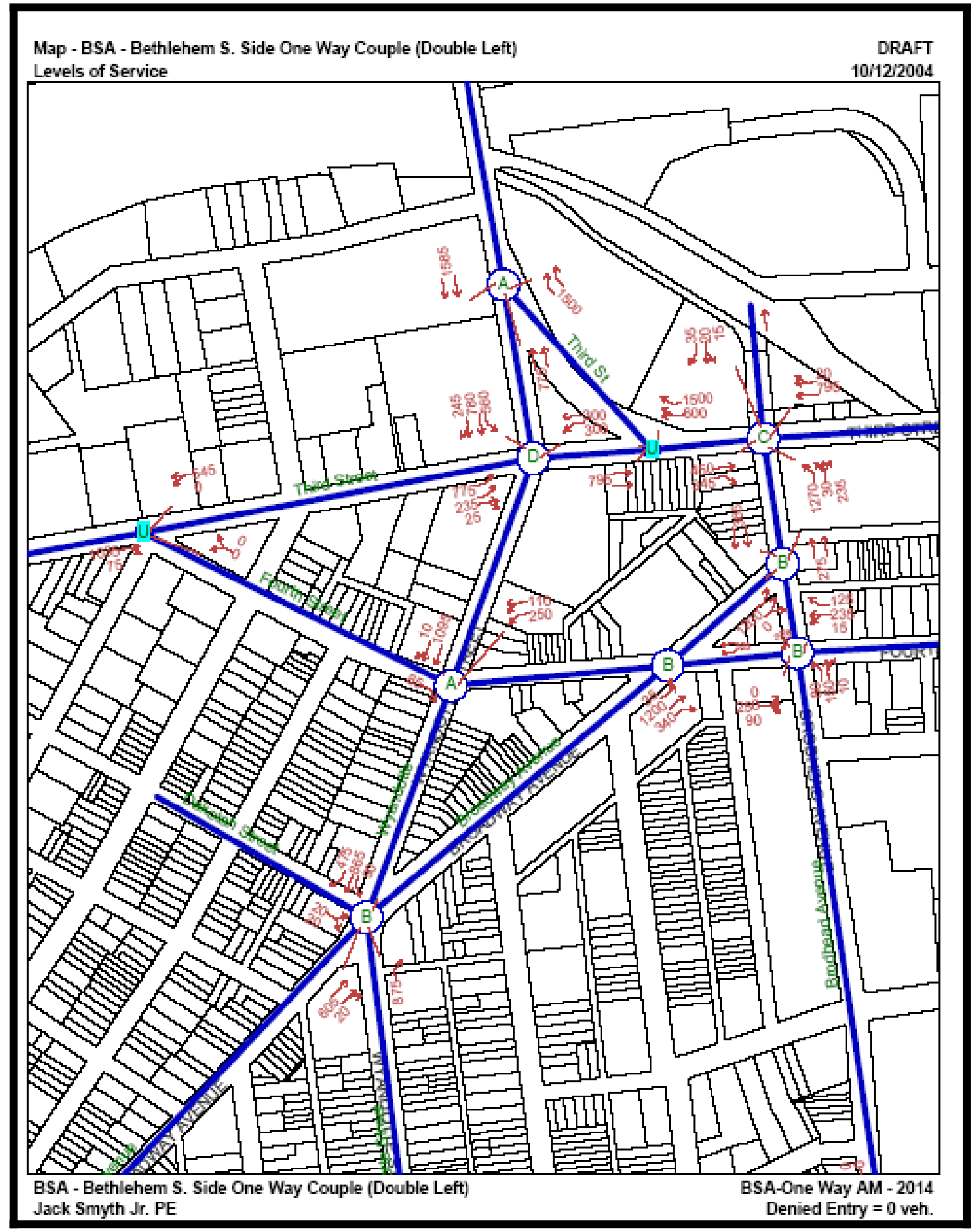

Map - BSA - 2004 Existing AM Peak Period
Levels of Service
DRAFT
10/12/2004
Third Street
Third St
Broadway Avenue
BSA - 2004 Existing AM Peak Period
Jack Smyth Jr, PE
BSA - Existing AM Conditions
Denied Entry = 100 veh (Wyandotte NB & 3rd St EB)

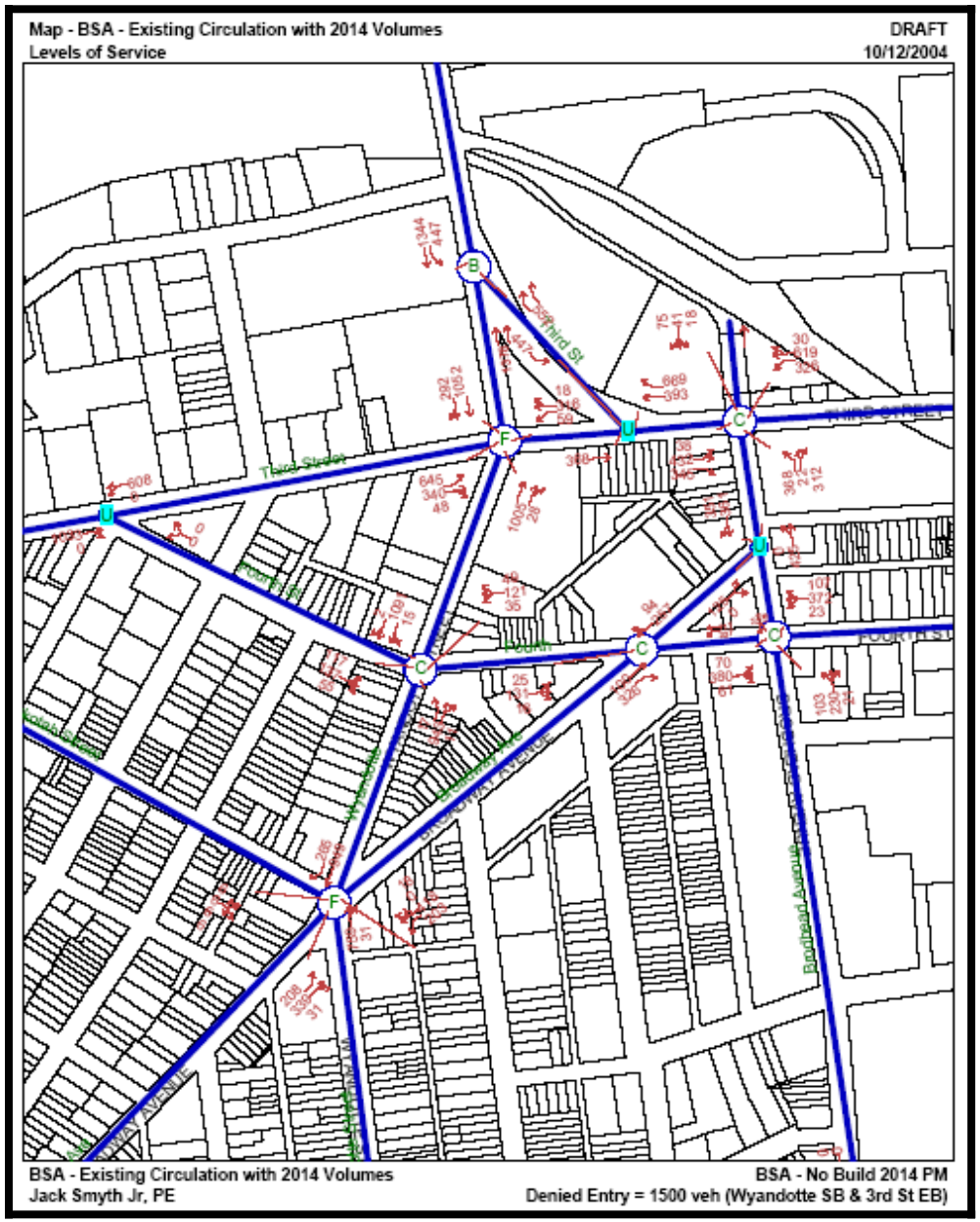

Map - BSA - Bethlehem S. Side One Way Couple (Double Left)
Levels of Service
DRAFT
10/12/2004
Third Street
Third St
Broadway Avenue
BSA - Bethlehem S. Side One Way Couple (Double Left)
Jack Smyth Jr. PE
BSA-One Way AM - 2004
Denied Entry = 0 veh

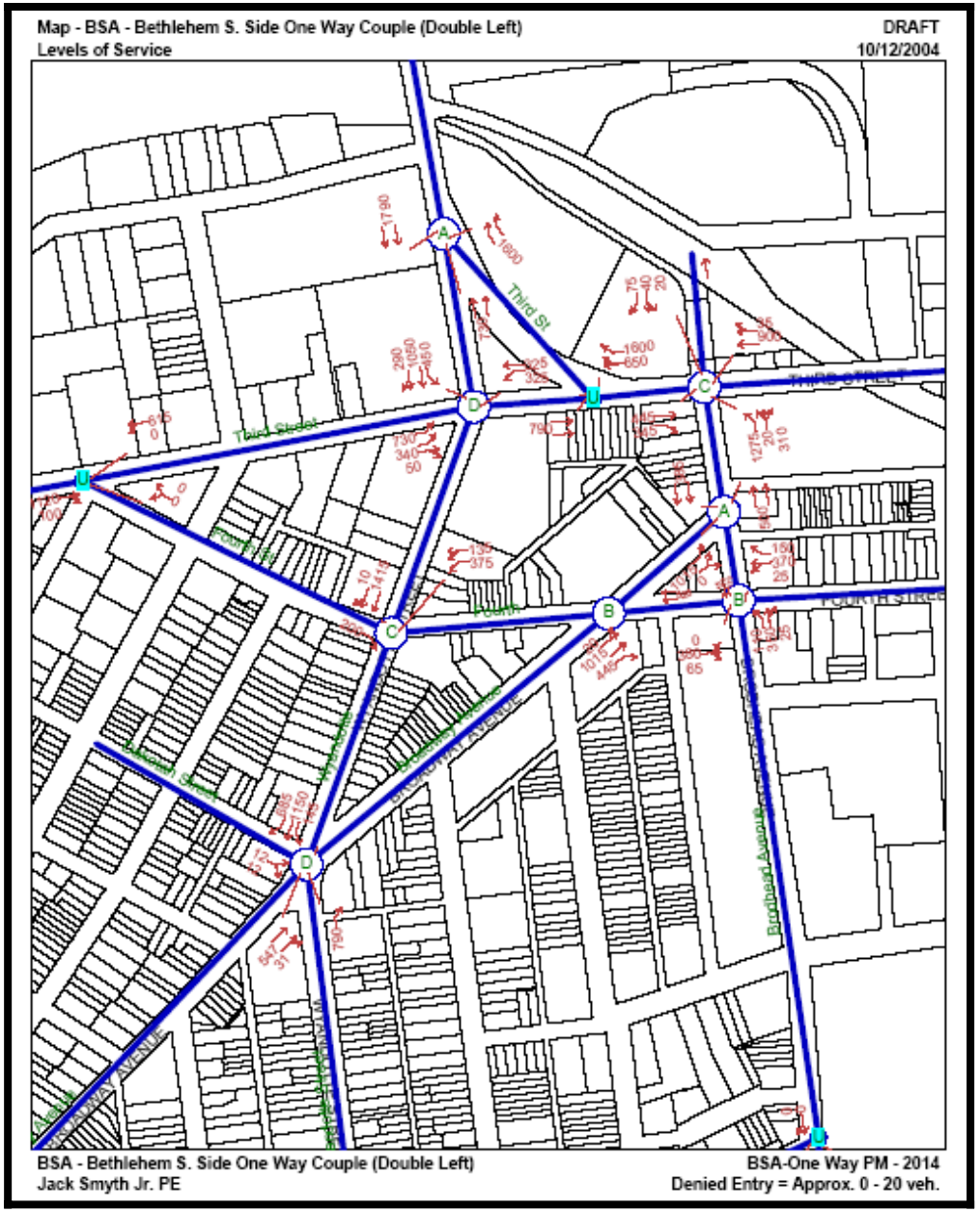

Map - BSA - 2004 Existing PM Peak Period
Levels of Service
DRAFT
10/12/2004
Third Street
Fourth Street
Broadway Avenue
BSA - 2004 Existing PM Peak Period
Jack Smyth Jr, PE
BSA - Existing PM Conditions
Denied Entry = 200 veh (Wyandotte SB & 3rd St EB)


Map - BSA - Bethlehem S. Side One Way Couple (Double Left)
Levels of Service
DRAFT
10/12/2004
Third St
Fourth Street
Broadway Avenue
BSA - Bethlehem S. Side One Way Couple (Double Left)
Jack Smyth Jr. PE
BSA-One Way PM - 2004
Denied Entry = 0 veh


Map - BSA - Existing Circulation with 2014 Volumes
Levels of Service
DRAFT
10/12/2004
Third St
Third Street
Fourth Street
Dakotah Street
Wyandotte Ave
Broadway Ave
BROADWAY AVENUE
Brodhead Avenue
THIRD STREE
BSA - Existing Circulation with 2014 Volumes
Jack Smyth Jr, PE
BSA - No Build 2014 AM
Denied Entry = 600 veh (Wyandotte NB & 3rd St EB)


Map - BSA - Bethlehem S. Side One Way Couple (Double Left)
Levels of Service
DRAFT
10/12/2004
Third St
Third Street
Fourth Street
Brodhead Avenue
BSA - Bethlehem S. Side One Way Couple (Double Left)
Jack Smyth Jr. PE
BSA-One Way AM - 2014
Denied Entry = 0 veh.


Map - BSA - Existing Circulation with 2014 Volumes
Levels of Service
DRAFT
10/12/2004
Third St
Third Street
THIRD STREET
FOURTH STREET
Broadway Avenue
BSA - Existing Circulation with 2014 Volumes
Jack Smyth Jr, PE
BSA - No Build 2014 PM
Denied Entry = 1500 veh (Wyandotte SB & 3rd St EB)


Map - BSA - Bethlehem S. Side One Way Couple (Double Left)
Levels of Service
DRAFT
10/12/2004
Third St
Third Street
THIRD STREET
FOURTH STREET
Broadway Avenue
BSA - Bethlehem S. Side One Way Couple (Double Left)
Jack Smyth Jr. PE
BSA-One Way PM - 2014
Denied Entry = Approx. 0 - 20 veh.

APPENDIX "B"

FREQUENTLY ASKED QUESTIONS ABOUT THE 5 POINTS GATEWAY ENHANCEMENT CONCEPT

Frequently Asked Questions
About the
5 Points Gateway Enhancement Concept

1. How will this concept improve pedestrian safety?

First, it reduces the number of lanes carrying traffic and decreases the distance pedestrians have to cross the street. Secondly the addition of on-street parking acts as a buffer between the traffic and pedestrians on the sidewalk creating a more walkable community.

2. How does the concept increase parking?

Of the alternatives analyzed for this study this concept is the only one that will return on-street parking along Wyandotte between 3rd St. and Broadway with out having to acquire private Right-of-Way. Additionally, our parking inventory found that an entire floor of the Flat Iron Parking Deck is underutilized. The City/Parking Authority should consider securing the parking deck and lot on the corner of 4th St. and Wyandotte. If this could be accomplished, we recommend moving the permit parking that is currently in the municipal lot to the parking garage. The lot could then become metered parking for patrons of the local businesses. Currently the lot is leased to the City. The lease expires in roughly two years.

3. How will one-way streets improve congestion in the 5 Points Gateway Area?

Changing the traffic pattern to one-way streets allows the traffic to move more efficiently by removing conflicting turning movements at key intersections and thus allowing more "green time" for through movements. In addition, a high-tech traffic signal would be installed that can respond better to changes in traffic volumes during the course of the day. The preliminary analysis of A.M. and P.M. traffic volumes under the one-way couple alternative shows an overall improvement in the Level of Service for the traffic system, eliminating back-ups that extend across the Hill-to-Hill Bridge and up Wyandotte Hill.

4. Will changing the traffic patterns to one-way streets increase speeding in the area?

No. A combination of measures will be used to control the speed of traffic. The high-tech traffic signal system will use progressive signal timing similar to Center Street on the North side. Numerous traffic calming techniques will be applied including bulb-outs, textured crosswalks, and pedestrian islands similar to the sections of Main St. in downtown Bethlehem and near Moravian College. Finally, improved signage will be used to let drivers know they are entering an urban area and should slow down.

5. Won't one-way streets impede access to my business for customers and deliveries and increase emergency response times?

Access will not be denied to any property under this plan. While the distance one has to travel to access a property or business may increase, the amount of time it takes to arrive at the destination should improve or remain about the same due to the reduction of congestion in the area. This issue will be verified during the next phase of design.

6. Why can't traffic patterns be changed back to the way they were before McDonald's opened?

This alternative could create a potentially unsafe condition for customers making the left off Wyandotte into the parking lot. Using required state sanctioned procedures; there is no evidence of safety issues that would warrant such a change. The change would not improve pedestrian safety or reduce congestion. Finally, the change would not address projected traffic volumes and congestion.

7. Would moving highway traffic onto Broadway and changing it to a one-way street ruin the community's character and natural balance?

This is a value judgment. One-way streets are common in urban areas like the 5 Points Gateway Area. Context sensitive design methods could be used to help improvements "fit in" with the community. A slight increase in traffic volumes on Broadway may occur over the course of the day, but the speeds will be controlled and the streetscape improvements will improve pedestrian safety and thus increase the walkability of the neighborhood.

8. Why are you recommending one-way streets here when the trend appears to be changing one-way streets back to two-way streets i.e. Center and Linden Streets?

One-way traffic systems can handle high volumes of traffic more efficiently. The areas of the City that looked at converting one-way streets into two-way streets experienced major decreases in traffic volumes with the closing of Bethlehem Steel. In contrast, the 5 Points Gateway Area has been experiencing increasing traffic volumes. This is a trend that is expected to continue into the foreseeable future.

9. Does this design accommodate large vehicles including emergency response vehicles and buses?

The preliminary analysis accounted for the large turning radii of large vehicles including buses and emergency vehicles. Details regarding possible changes in specific routes will be addressed during the next phase of design.